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Functional Polymers

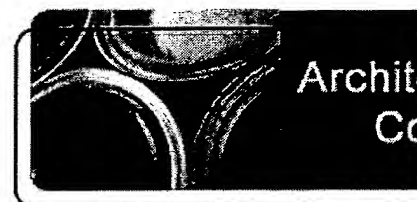
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HELPING MAKE PRODUCTS BETTER™



Acronal Optive® 220

Fields of Application:

An aqueous acrylic ester copolymer dispersion with wet adhesion on alkyd substrates.

The main field of application for Acronal Optive® 220 is as a binder for architectural coatings, flat through semi-gloss. Acronal Optive® 220 has excellent wet adhesion of aged alkyd substrates and demonstrates excellent durability on exterior exposure.

Processing:

Emulsion paints are produced from Acronal Optive® 220 by conventional techniques. In order to ensure that the viscosity of the made-up paints does not undergo any change during long storage periods, the pigments and extenders must be dispersed with adequate amounts of wetting and dispersing agents.

Various thickeners may be added to regulate the viscosity and flow and to improve the brushability.

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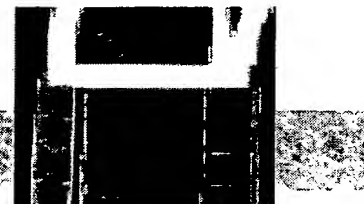
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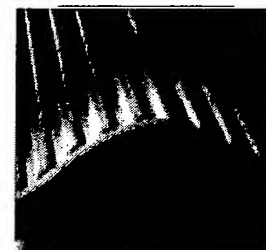
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BASF Corporation is a NAFTA region company that is committed to the architectural coatings market. Extensive investment in manufacturing and research and development allows BASF to be responsive to present requirements and ensure future needs.

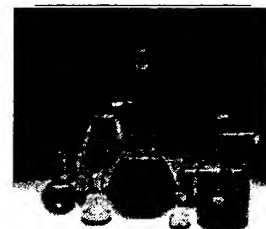
In the NAFTA region, BASF manufactures styrene-butadiene and acrylic copolymer emulsions in Monaca, PA, Chattanooga, TN, and Altamira, Mexico. Marketing, technical and customer service, as well as research and development activities are located in Charlotte, NC at BASF's Charlotte Technical Center.

BASF is a global company and a reliable developer and supplier of architectural acrylic latex resins. The BASF portfolio includes: Acronal Optive® 130, a leading edge straight acrylic resin delivering high performance in flat through gloss paints from 0 to 150 g/l VOC; Acronal Optive® 110, a straight acrylic resin which offers excellent block resistance for semi-gloss paints at 150g/l VOC; Acronal Optive® 230, a high solid straight acrylic resin designed to meet 50 g/l VOC requirements for interior and exterior flat paints. All these straight acrylic resins offer excellent wet adhesion on aged alkyd substrates and provide high durability on exterior exposure.

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Extremely versatile straight acrylic latex polymer for interior and exterior house paints

Acronal Optive 220, is a straight acrylic latex polymer intended for flat through semi-gloss interior and exterior house paints. Paints made with Acronal Optive 220 exhibit enhanced performance characteristics with excellent wet adhesion for flat through semi-gloss paints, while maintaining cost efficiency.

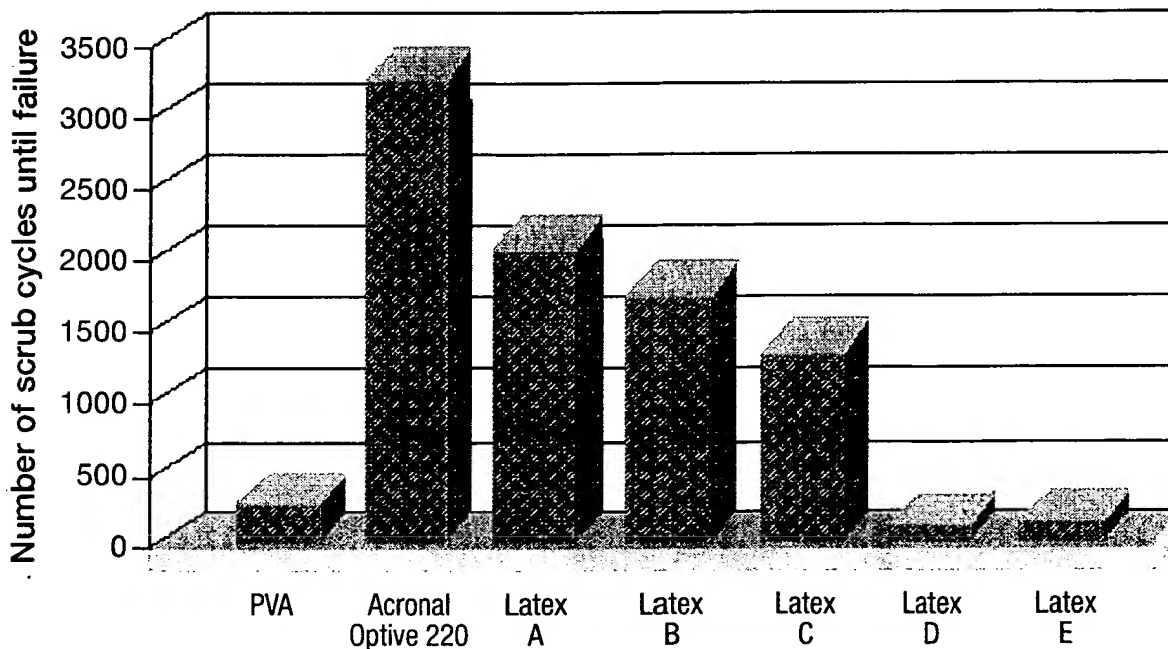
This "workhorse" resin is also ideal for modification of interior semi-gloss based poly-vinyl acrylic (PVA) paints to improve adhesion to previously painted substrates. Excellent adhesion can be achieved by replacing as little as 10 percent of a PVA latex polymer with Acronal Optive 220.

FEATURES

- Excellent wet/dry adhesion
- Broad application range
- Shear/electrolyte stability
- Good vinyl compatibility
- Mid-range MFFT

Wet adhesion comparison

Wet adhesion with 10 percent acrylic modification



Compared to other acrylic latex polymers, Acronal Optive 220 exhibits superior wet adhesion when blended with PVA latex.

Acronal Optive 220 latex properties

Solids Content by Weight	49%–51%
Solids Content by Volume	46%–48%
pH	7.5–9.5
Viscosity	600–1800 cps
Specific Gravity	1.04 g/cm ³
Density	8.87 lbs./gal.
MFFT	14° C

Contact Information

Sales and Technical Service 800/395-5152, ext. 8143
www.basf.com/dispersions
Customer Service 800/251-0612

BASF Corporation
11501 Steele Creek Rd.
Charlotte, NC 28273

Additional Applications

Acronal Optive 220 can also be used for masonry paints due to its excellent alkali resistance. Acronal Optive 220 offers a good balance of properties for exterior solid color stains and can be used to formulate general purpose primers due to its excellent adhesion properties.

Formulation Recommendations

Acronal Optive 220 has good exterior durability in high quality flats. For optimum abrasion resistance, Acronal Optive 230 should be used. For optimum block resistance, Acronal Optive 110 should be used.

Coalescent – Acronal Optive 220 has a minimum coalescent demand of 2.5 percent based on polymer solids, however a coalescent level of 5 percent produces enhanced performance characteristics. For optimum early adhesion, Dowanol® DPnB should be used instead of Texanol®.

Rheology – For maximum viscosity response, use NOPCO DSX 1514, and 3000. Other suitable thickeners are Aquaflow™ NLS 200 and NHS 300.

Color Acceptance – Acronal Optive 220 gives excellent color acceptance without the addition of surfactant. This can result in cost savings when changing latex resins.

Freeze/Thaw – Acronal Optive 220 can be formulated at VOC levels below 100 g/l while maintaining freeze/thaw stability.

Defoamers – Depending on the formulation's dispersant/surfactant package, Acronal Optive 220 based paints can be defoamed with Foamaster® VL, Foamaster® S, Drewplus® L-475 or Drewplus® L-493.

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Technical Information

February 2001

Coatings Raw Materials

Acronal Optive® 220

**Aqueous polymer dispersion with wet adhesion character
for architectural coatings**

BASF

Acronal Optive® 220**Nature**

An aqueous acrylic ester copolymer dispersion with wet adhesion on alkyd substrates

Properties

Product specification	Solids content	%	50±1
	pH		7.5-9.5
	Viscosity at 23°C (Brookfield RV, spindle #4 at 50 rpm)	cps	600-1800
Other properties of the dispersion	Density	lbs/gal g/cm³	ca. 8.88 ca. 1.06
	Minimum film forming temperature	°C °F	ca. 14 ca. 57
	Dispersion type		nonionic/anionic
	Sensitivity to frost	°F °C	<32 <0

Applications**Fields of application**

The main field of application for Acronal Optive 220 is as a binder for architectural coatings, flat through semi-gloss. Acronal Optive 220 has excellent wet adhesion on aged alkyd substrates and demonstrates excellent durability on exterior exposure.

Processing

Emulsion paints are produced from Acronal Optive 220 by conventional techniques. In order to ensure that the viscosity of the made-up paints does not undergo any change during long storage periods, the pigments and extenders must be dispersed with adequate amounts of wetting and dispersing agents (e.g., Pigment Disperser® A together with polyphosphates).

Various thickeners may be added to regulate the viscosity and flow and to improve the brushability. All kinds of cellulose ethers, either by themselves or together with polyacrylates, may be used for this purpose. Inorganic thickeners (e.g., montmorillonites and finely divided silica), are also suitable. Polyurethane thickeners are strongly recommended for improving the flow. Hydroxyethylcellulose, either by itself or together with other thickeners, has given extremely good results in preventing creaming or pigment flocculation in paints colored with preparations of chromatic pigments (e.g., Luconyl® types). Small amounts of nonionic surfactants (e.g., Lumiten® N-types), also exert a beneficial effect in this connection. In any event, compatibility and storage stability tests are recommended.

In common with all other finely divided dispersions, Acronal Optive 220 tends to foam. Consequently the addition of a defoamer is essential in the proportions recommended by the manufacturer (usually of the order of 0.3-1%). Its efficiency should be checked by prior experiment.

Small amounts of coalescents should be included in the formulations in order to ensure that a perfectly satisfactory film can be formed at temperatures below 14°C. Suitable solvents for this purpose are glycol ethers and their acetates, mineral spirit-containing aromatics, Texanol® and Dalpad® A (registered trademarks of Dow Chemical), either individually or mixed together. In general, the maximum proportion that would suffice for coalescents is 2%, expressed in terms of the total made-up paint. Solvents that are freely miscible with water (e.g., lower alcohols or glycols), are unsuitable coalescents, but temporarily impair the resistance to blocking and increase the sensitivity to water.

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ACRONAL 18 D Acrylat	BASF	Dispersionsfarben, Dispersionsputze, Holzschutzlacke / Holzdecklacke	AGITAN
ACRONAL 290 D Styrol-Acrylat	BASF	Dispersionsfarben, Dispersionsputze	AGITAN
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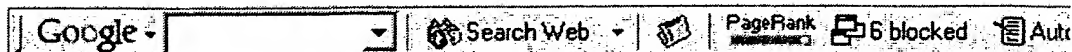
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